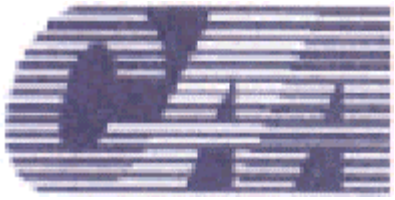


ADS-B OpEval
OCG-1
@ MITRE/CAASD

April 11-13, 2000

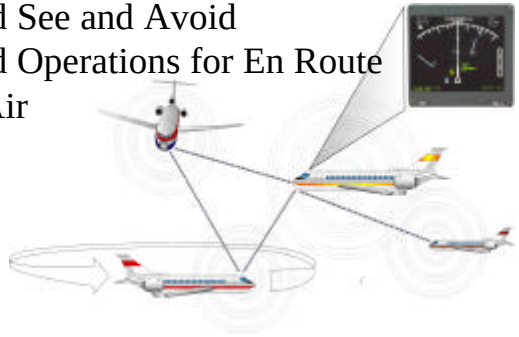
Overview

- **SF21 RTCA Nine Operational Enhancements**
- **CAA Objectives**
- **Memphis (MEM) Objectives**
  - Airport Target Identification System (ATIDS)
- **Louisville (SDF) Objectives**
  - Common ARTS
  - OpEval Applications Overview
- **Time Table**
- **I-Lab OpEval Development Phases**
- **OpEval Coordination Group (OCG) Structure**
- **RFI Letter Status / Update**

SF21 RTCA Nine Operational Enhancements

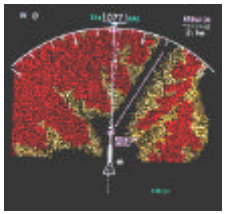
Air-to-Air

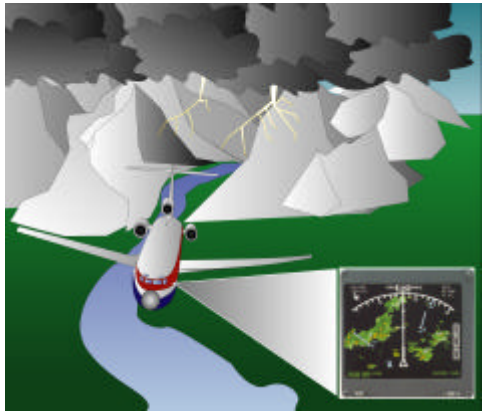
- Improved Separation Standards
- Improved Low-Visibility Approaches
- Enhanced See and Avoid
- Enhanced Operations for En Route Air-to-Air



Air-to-Ground

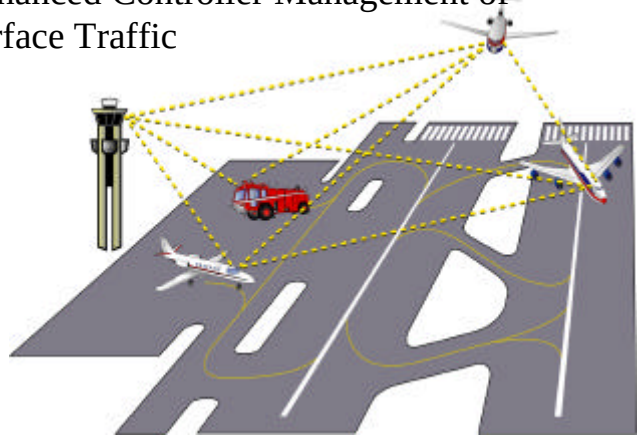
- Surveillance Coverage in Non-Radar Airspace
- Affordable Reduction of Controlled Flight into Terrain (CFIT)





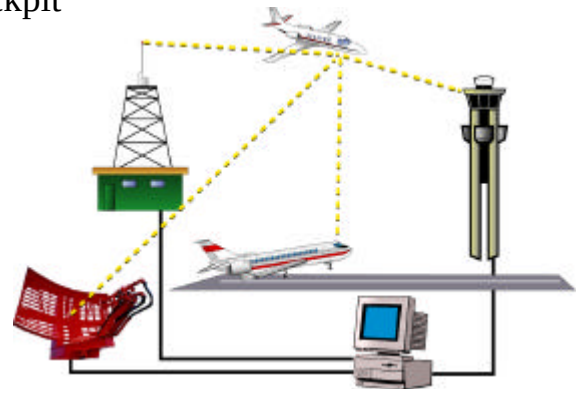
Ground-to-Ground

- Improved Navigation on Taxiways
- Enhanced Controller Management of Surface Traffic



Ground-to-Air

- Weather and Other Data to the Cockpit



CAA Prioritized Objectives

- **Airborne Conflict Detection & Resolution**
- **Improved Terminal Area Operations**
- **Runway Incursion**
- **Surface Navigation**
- **Fix TIS (Required to move to TIS-B)**
- **TIS-B**

MEM OpEval-3 Objectives (Spring '01)

- **Develop and evaluate avionics and procedural modifications needed to support operational approval for the following SF21 Master Plan application:**
  - Enhanced Presentation of Surface Targets to Controller (7.1)
- **Enhance Airport Surface Management by facilitating better coordination among and communication between surface traffic management operations within airline operations, air traffic control and airport operators.**
  - Partnership with NWA
- **Limited demonstration to key industry participants**

Airport Target Identification System (ATIDS)

- **Surveillance Data Automation**
  - Tracking & Identification of Transponder Equipped Aircraft
  - Fusion of ASR-9 (Terminal Radar), ASDE-3 (Surface Radar), ADS-B (LDPU & TCAS II Change 7 Mode S) and Mode A/C/S Equipped Aircraft
  - Common Display in FAA ATCT, FedEx and NWA RTOs

- **Schedule**
  - System delivered to MEM Aug 2000
  - System testing completed Nov 2000

SDF OpEval-2 Objectives (Fall '00)

- **Develop and evaluate avionics and procedural modifications needed to support operational approval for the following SF21 Master Plan applications:**
  - Approach Spacing (for visual approach) (3.2.1)
  - Departure Spacing/Clearance (3.4)
  - Runway and Final Approach Occupancy Awareness (6.1.1)
  - Airport Surface Situational Awareness (6.2)
- **Evaluate air traffic controller use of ADS-B in terminal area environment, concentrating on the applications listed above.**
- **Limited demonstration to key industry participants**

Common ARTS

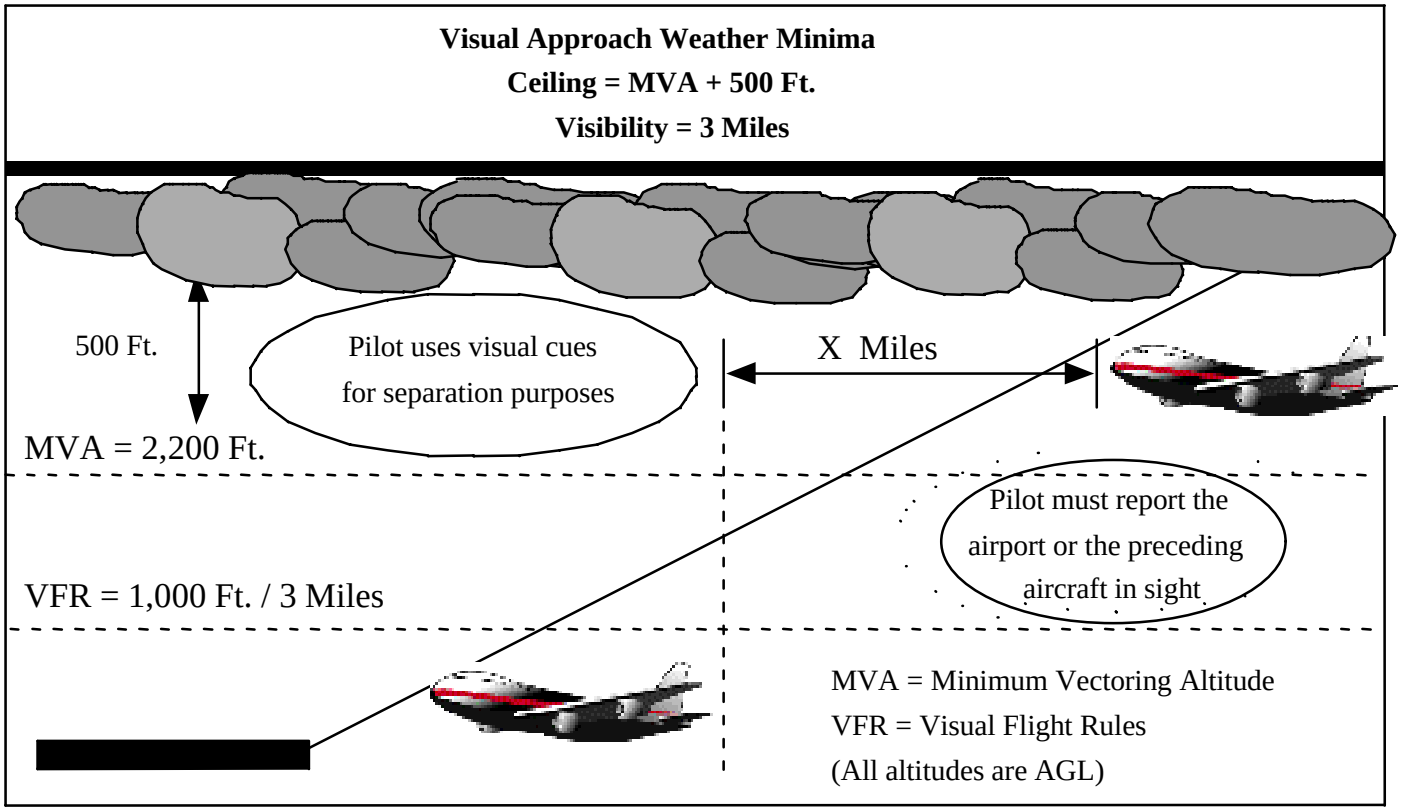
- **Common ARTS Terminal Automation System**
  - Single thread (non-redundant) subset of ARTS-IIIE
  - Will include hardware, software, two “SF21 displays”
  - To be operated in shadow mode
  - SF21 displays to be located in TRACON

- **Schedule**
  - System delivered to SDF Aug 2000
  - System testing completed Sept 2000

SDF OpEval-2 Applications Overview

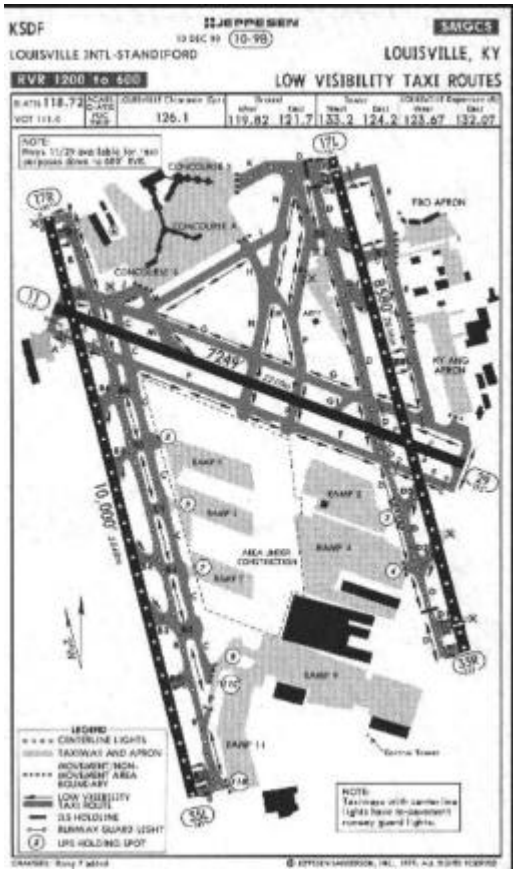
- **Approach Spacing (for Visual Approach)**
- **Airport Surface Situation Awareness**
- **Runway and Final Approach Occupancy Awareness**
- **Departure Spacing**

Approach Spacing (for Visual Approach)



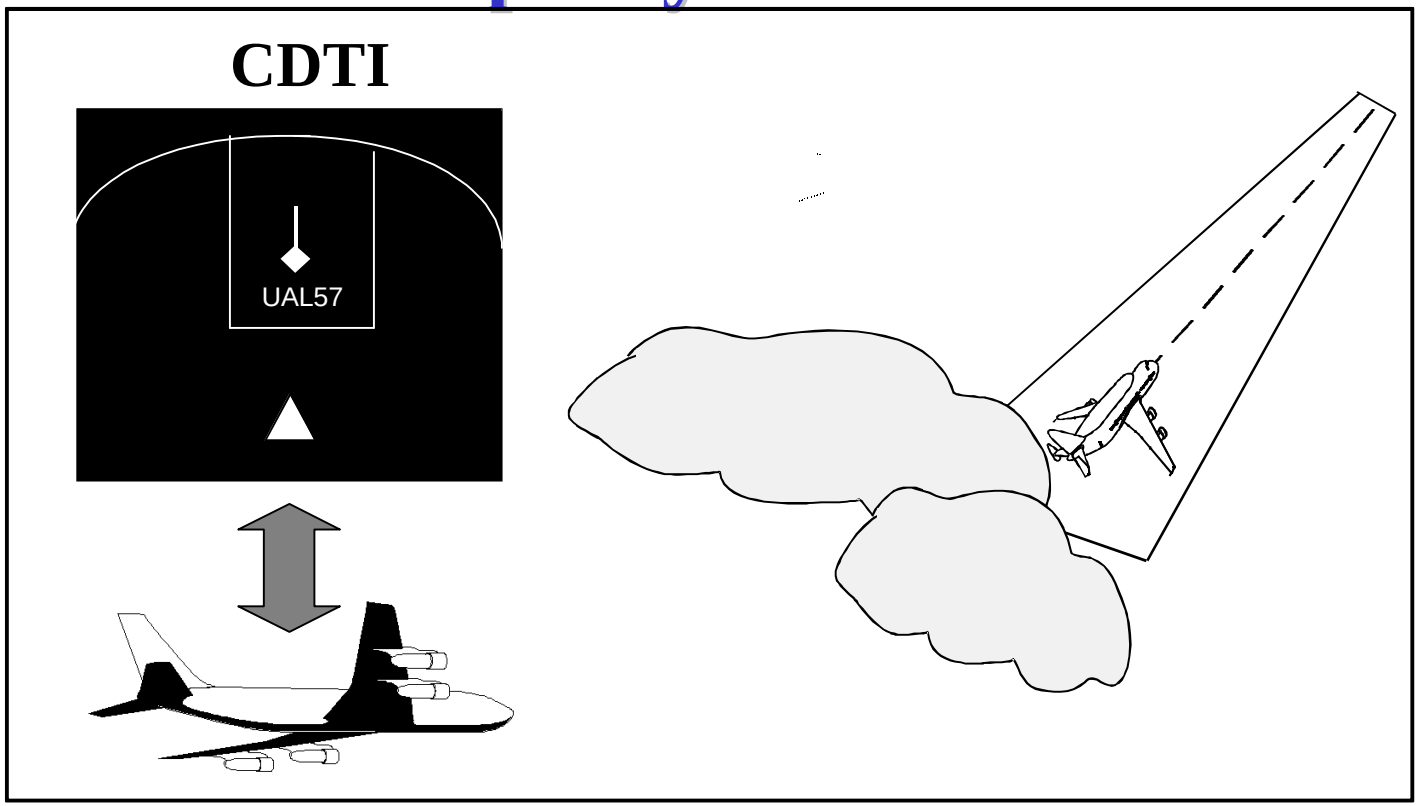
- **Objective: Assess whether CDTI can support consistent spacing interval at runway threshold**

Airport Surface Situation Awareness



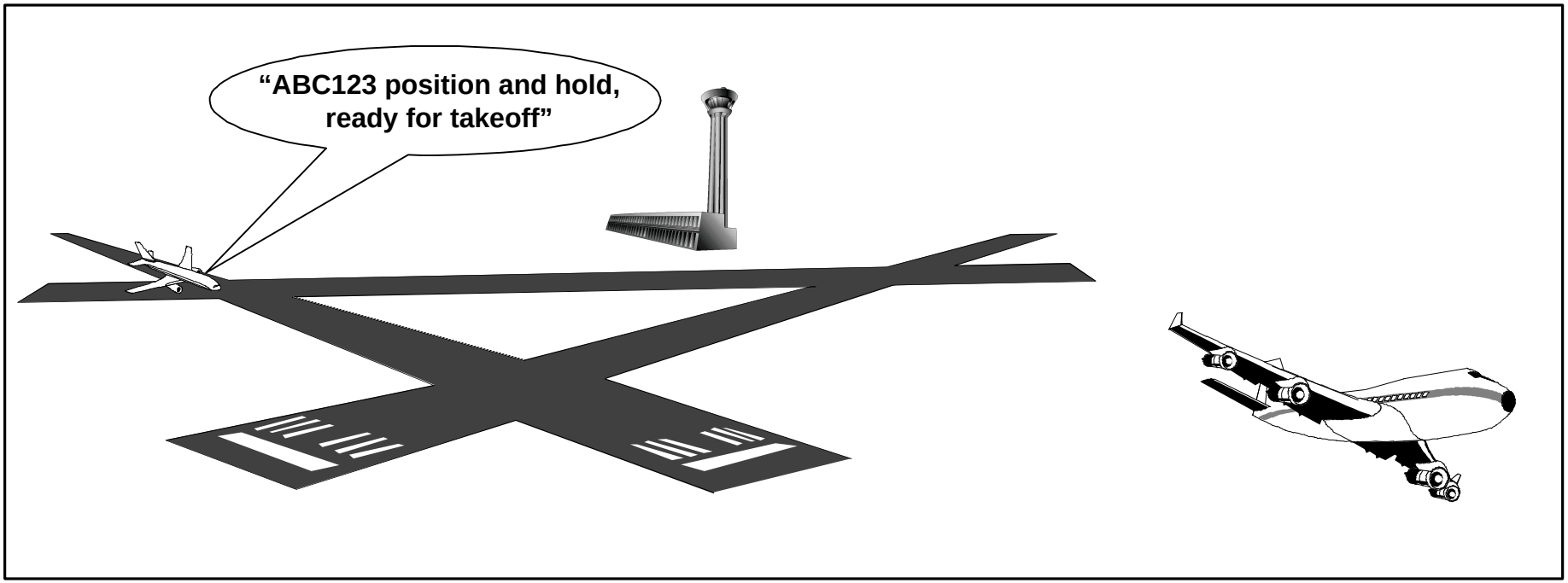
- **Objective: Assess whether CDTI can enhance surface situational awareness on the flight deck**

Runway and Final Approach Occupancy Awareness



- **Objective: Assess whether CDTI can enhance runway traffic awareness**

Departure Spacing



- **Objective: Assess whether CDTI can enhance departure operations**

Time Table

Calendar Year 2000

- **Feb - May** — Define SDF Application Requirements
- **May 15** — Non-CAA Participants RFI Selection
- **May 23-24** — OCG-2 @ SDF
- **May - Jul** — I-Lab Implementation of SDF Application Requirements
- **Jun 13-15** — I-Lab I & OCG-3 @ MITRE/CAASD (SDF)
- **Jul** — UPS STC request for Ops Approval
  Define MEM High-level Application Rqmts
- **Jul 25-27** — I-Lab II & OCG-4 @ MITRE/CAASD (SDF)
- **Jul - Sep** — Installation & Optimization of Common ARTS @ SDF
- **Aug - Nov** — Installation & Optimization of ATIDS @ MEM

Time Table

Calendar Year 2000 - 2001

- **Sep 11-14** — **I-Lab III (SDF) & OCG-5 @ MITRE/CAASD**
- **Oct. 10 -12** — **OCG-6 @ SDF**
- **Oct 23-26** — **Dry Run @ SDF**
- **Oct 26-31** — **OpEval-2 @ SDF**
- **Nov** — **OCG-7 @ MITRE/CAASD**
- **Nov-Jan 2001** — **Define MEM Application Requirements**
- **Jan** — **Draft OpEval-2 Reports**
- **mid-Jan** — **I-Lab I & OCG-1 (MEM)**
- **Feb** — **FedEx STC requests for Ops Approval**
- **mid-Feb** — **I-Lab II & OCG-2 (MEM)**
- **mid-Mar** — **I-Lab III & OCG-3 (MEM)**
- **Apr/May** — **OpEval-3 @ MEM**
- **Jun-Oct** — **OpEval-2 & OpEval-3 Reports**

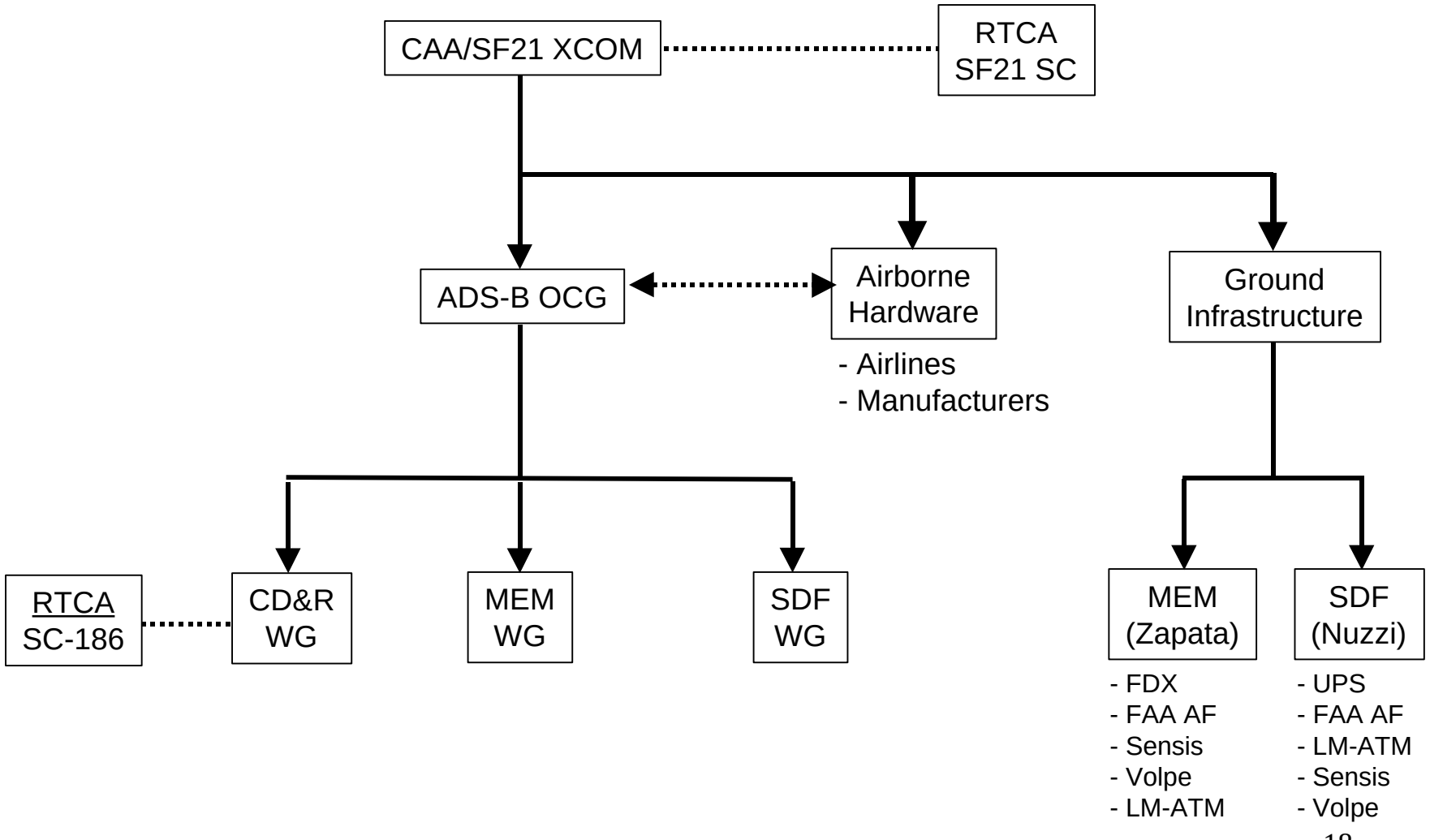
I-Lab OpEval Development Phases

- **I-Lab Simulation Objectives**
  - Develop application-specific procedures, briefing materials, scenarios, and data collection parameters that will be used in the OpEval flights
- **3 I-Lab simulations**
  - CAA CDTI & “Enhanced” CDTI
  - SDF Airport
  - Controller TRACON Displays

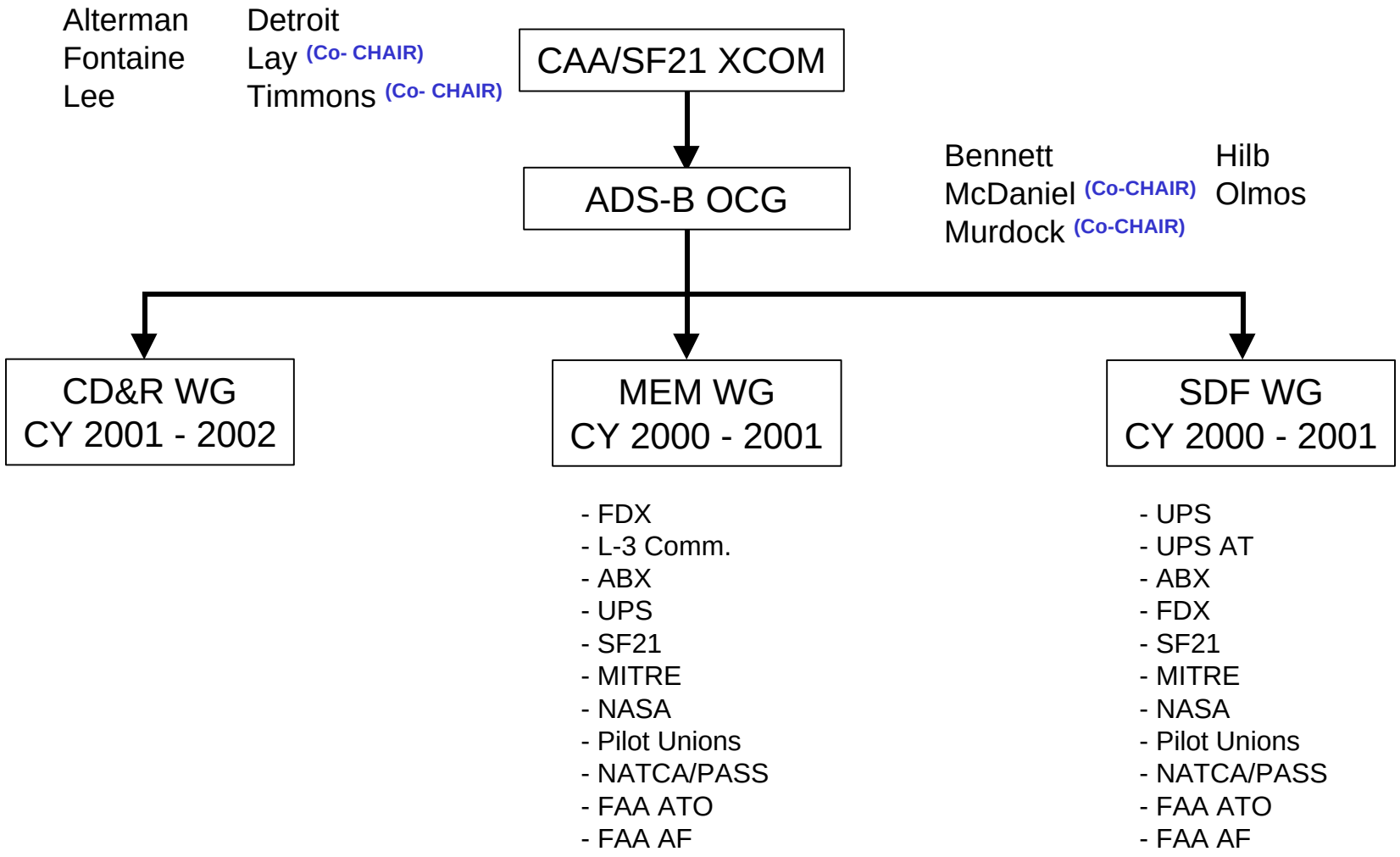
I-Lab OpEval Development Phases

- **I-Lab I Objectives (June 13-14):**
  - Review simulation environment
  - Initial scenario development
- **I-Lab II Objectives (July 25-26):**
  - Further scenario & procedural development
  - Review “Enhanced CDTI” for applications
  - Identify data collection parameters
- **I-Lab III Objectives (Sept. 12 -14):**
  - Finalize scenarios, procedures, data collection, and briefing materials for use in OpEval
  - Finalize requirements for “Enhanced CDTI”

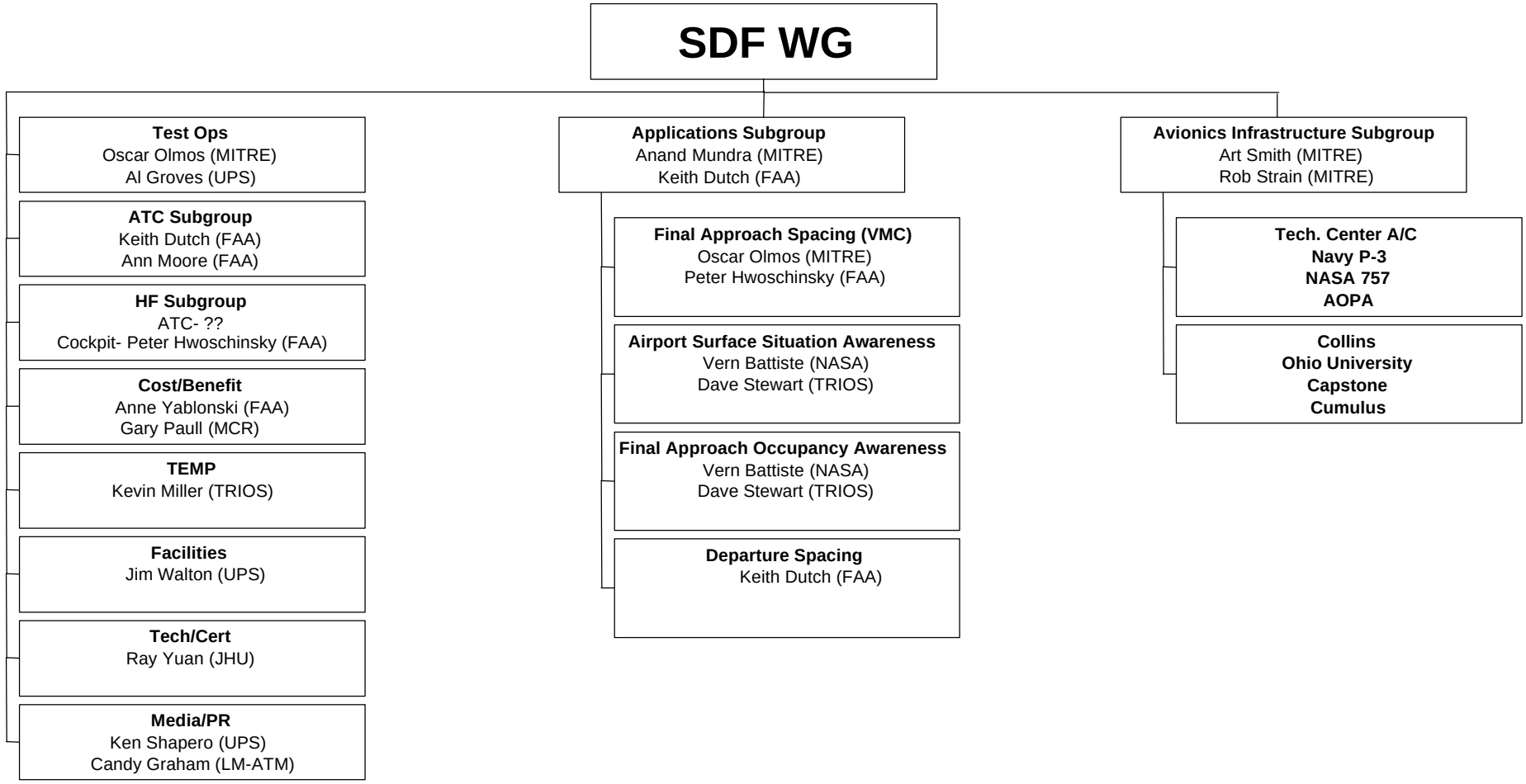
Steering Committee Structure



ADS-B OCG Structure



SDF OpEval-2 WG Structure



RFI Letter Status / Update

- **Mar 21** — **Official Letters Mailed by CAA**
- **Apr 21** — **Response Due to CAA**
- **Apr 22 - May 12** — **Evaluate RFI's**
  - **- Avionics Infrastructure Subgroup**
  - **- Test Ops Subgroup**
- **May 15-19** — **Participants Selected**
- **May 22** — **Participants Notified**
- **May 24-26** — **Participants Invited to OCG-2**

RFI Recipients

- AGATE Consortium
- AOPA
- BF Goodrich
- Capstone
- Cumulus Consultants
- Defense Concept Associates
- Honeywell
- Litton Aero Products
- NASA Langley
- Northrop Grumman
- Ohio University
- Rockwell Collins
- USAF Flight Standards Agency
- US Navy